

DCSUG Newsletter

Washington, DC SAS Users Group

Fourth Quarter Meeting

When: Tuesday, December 5, 2000
Time: 8:30a.m. to noon
Place: **U.S. International Trade Commission**
500 E Street, SW
Washington DC

LOCATION
CHANGE



Agenda: 8:30 - 9:00 Registration and refreshments
9:00 - 9:15 Announcements
9:15 - 10:15 Andrew H. Karp, Sierra Information Services, Inc.
***Changes and Enhancements to Procs MEANS and SUMMARY
in Version 8 of the SAS System***
10:15 - 10:30 Break
10:30 - 11:30 Sue Kocher, SAS Institute
***How to Get the Online Information You Need – An Overview of
'What's Where' for Help, CD, Online Tutor, and on the Web***
11:30 - Noon User-to User Questions and Answers
Moderators - DCSUG officers
***Presentation times subject to change**

Directions for those taking Metro: Take the Blue, Orange, Yellow or Green line to the L'Enfant Plaza metro station. Exit the station via the DOT (7th and D Streets) exit. Walk east (toward the Capitol, away from HUD) on D Street to 6th Street and then south (toward the freeway, away from the mall) on 6th to E Street. Upon entry, **present a picture ID** to the guard and follow the signs to the meeting room.



If you have special needs and are planning to attend this meeting, please contact any DCSUG officer no later than 11/22/00

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President's Message

Peter Knapp

Due to a scheduling conflict, our usual meeting site is not available for our December meeting. We were fortunate to secure space in our previous meeting location. Please make note of the address and directions to the U.S. International Trade Commission. There is an excellent agenda planned with interesting and informative presentations by Sue Kocher and Andrew Karp. They have presented at SUGI and other SAS conferences. I hope you will be able to attend this last quarterly meeting of 2000 and hope to see you at the 2001 meetings.

Speaker Abstracts

Changes and Enhancements to PROCs MEANS and SUMMARY in Version 8 of the SAS System

Andrew H Karp. Sierra Information Services, Inc.

PROCs MEANS and SUMMARY are often critical steps in SAS Software programs that manage and/or analyze data. Long a "workhorse" element of BASE SAS, these procedures offer unparalleled power to rapidly summarize, analyze and report the values of numeric variables in SAS data sets. This paper shows you some of the key changes and enhancements to PROCs MEANS and SUMMARY and show you how to get even more processing power out of them in the newest release of SAS System software.

Among the new features discussed in this paper are: obtaining medians and other quantile statistics, using multiple CLASS statements, using the DESCENDING option in the CLASS Statement, how the use CHARTYPES option eliminates the need to figure out the appropriate value of the _TYPE_ variable, using the WAYS and/or TYPES statements, and how to obtain extreme values (eg, "top 5") of your analysis variables using the IDGROUP statement. You will also learn the power of the new PRELOADFMT, COMPLETETYPES, AUTOFORMAT and KEEPLEN options. This presentation is appropriate for all SAS Software users who regularly use PROCs MEANS and/or SUMMARY and want to know "what's new" for Version 8.

Andrew Karp has over 18 years of experience using, and teaching others how to use, the SAS System to manage, analyze and report data. He is President of Sierra Information Services, Inc., a firm selected as a Quality Partner by SAS Institute, Inc. In addition to his consulting and training practice Mr. Karp is regularly invited to share his expertise in the SAS System at user group meetings, and has presented over 50 papers at meetings in five countries, including the annual SUGI and SEUGI conferences. His firm is affiliated with Software Product Services, Ltd, through which he has regularly presents SAS Software seminars in Belgium, the United Kingdom and Australia. Mr. Karp has also taught courses in the SAS System at the University of California, Berkeley, and for SAS Institute (New Zealand) Ltd. He holds undergraduate and graduate degrees from The George Washington University in Washington, DC.

How to Get the Online Information You Need -- An Overview of 'What's Where' for Help, CD, Online Tutor, and on the Web

Sue Kocher, SAS Institute Inc.

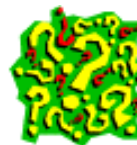
This presentation provides a roadmap to the myriad of information topics available for users of the SAS® System, Version 8. Books and SAS OnlineDoc®, the SAS Help system, SAS Online Tutor™, Books by Users, Solutions@Work®, and the Publications Home page are discussed.

Sue Kocher has been with the SAS Institute in Cary for 3 years, and is currently a Technical Editor in the Publications Division. She is the principal editor for the base Help and for base SAS software books in the SAS OnlineDoc. She entered technical editing after a 12-year career as a university instructor of academic research and writing skills in the US, Japan, Australia and Turkey.

Questions and Answers

Moderated by

DCSUG Officers



Bring your SAS programming or procedure questions to DCSUG and its members. During this open session, you can ask questions of and get answers from experienced SAS users. All are welcomed to participate

Desktop Special Interest Group

The next meeting TBA

Check the DCSUG home page for the next meeting announcement:

<http://www.ita.doc.gov/industry/otea/dcsug>

Please contact Yesvy Gustasp or Joe Mirabal (see Steering Committee column) with questions, requests, suggestions, and offers.

DCSUG 2000 Steering Committee OFFICERS

CHAIR -- Peter Knapp

(202) 482-1359 (202)482-1388(fax)
peter_knapp@ita.doc.gov

SECRETARY -- Larry Altmayer

(301) 457-2581 (301) 457-4437 (fax)
Lawrence.W.Altmayer@census.gov

TREASURER -- Arlene Siller

(301) 458-4498 (301) 458-4032 (fax)
asiller@cdc.gov

SAS LIAISON -- Mike Rhoads

(301) 251-4308 (301) 294-2040 (fax)
rhoadsm1@westat.com

OTHER COMMITTEE MEMBERS

Karen Dennis

(301) 294-3876 (301) 294-2034 (fax)
dennisk1@westat.com

Frank Fry

(202) 452-2666 (202) 452-6433 (fax)
ffry@frb.gov

Michael Raithel

(301) 610-4997 (301) 315-5934 (fax)
marraithel@erols.com

Linda Atkinson

(202) 694-5046 (202) 694-5718 (fax)
Atkinson@ers.usda.gov

Howard Schreier

(202) 482-4180 (202) 482-4614 (fax)
Howard_Schreier@ita.doc.gov

DESKTOP SPECIAL INTEREST GROUP

CO-CHAIR -- Joe Mirabal

(703) 265-4620
jmmirabal@aol.com

VICE-CHAIR -- Yesvy Gustasp

(301) 589-4530 (202) 307-5888 (fax)
Yesvy.Gustasp@mix.cpcug.org

NESUG Conference Proceedings for Sale

DCSUG will have copies of the Proceedings of the NorthEast SAS Users Group Conference available for sale at the December meeting. These contain a wealth of information on a wide variety of topics. The CD version, which will sell for \$15, has papers from the 1997, 1998, 1999, 2000 meetings. The hardcopy of the 2000 Proceedings will sell for \$10, and while supplies last, a copy of the 1999 Proceedings will be given free with each purchase.

Door Prizes

NESUG 2000 Goodies (t-shirts, bags, etc), and book drawing from SAS Book Sales.

Due to the high cost of mailing out newsletters, DCSUG will be emailing notices of the availability of accessing the quarterly newsletter (and other important announcements) at the DCSUG Internet site. If you are a member, please make sure your email address is current in our database. Please notify Larry Altmayer at Lawrence.W.Altmayer@census.gov with the email address you want to use to receive notification of the publication of the newsletter. Members will still have the option of continuing to receive a hard copy of the newsletter upon request.

SAS Talk

A Double Transpose

Ian Whitlock, Westat, Rockville, MD

Abstract

Many SAS programmers avoid PROC TRANSPOSE in favor of DATA step array manipulation. Are you one? I will discuss a short problem that can serve as a tutorial giving insight into how to use PROC TRANSPOSE.

Suppose Q1 - Q10 represent the answers to 10 multiple choice questions with 5 possible responses (1, 2, ..., 5). How can you obtain the following frequency report?

	1	2	3	4	5
Q1	4	6	2	0	1
Q2	2	7	1	2	1
Q3	1	1	2	5	4
...					
Q10	5	5	0	0	3

Introduction

PROC TRANSPOSE can be one those useful procedures with a steep learning curve, particularly when a BY statement is involved. It can often replace a lot of DATA step array code. However array manipulation is typically more efficient and should be used when dealing with great volumes of data.

First consider the simple DATA step

```
data w ;
  input year sales ;
cards ;
1997 4205
1998 20650
1999 63945
2000 119827
;
```

We would like to transform the data into:

SL1997	SL1998	SL1999	SL2000
4205	20650	63945	119827

Note that in doing so we have made it dramatically harder to access the data. Originally we had a year data value to locate any particular sales figure. After the transformation, the year information is buried in the SL variable names not in data; consequently it is harder to access. However it is a

transformation commonly requested on SAS-L. The code to obtain it is simple, and it is almost as simple to transform back again.

```
proc transpose data = w
  out = t (drop=_name_)
  prefix = SL ;
  id year ;
  var sales ;
run ;
```

To make the problem slightly harder we add a region specification (1,2,3, or 4). Now the data should transform to

REGION	SL1997	SL1998	SL1999	SL2000
1	4205	20650	63945	119827
2	420	650	1194	2787
3	8250	25360	23085	119827
4	54295	56548	63945	98270

Now to transform the data we need a BY statement. You can think of each separate region as a subset to be processed like the original file was. Here is the code.

```
proc transpose data = w
  out = t (drop=_name_)
  prefix = SL ;
  by region ;
  id year ;
  var sales ;
run ;
```

Note that now we need a combination of data (which region) and variable name (which SL variable) to locate the sales figure for any given region and year. Again this will raise the complexity of programming required to work with the data.

The next problem comes when we add another variable to the data set W. Suppose we have both SALES and PROFIT. Now we want SL1997 - SL2000 and PR1997 - PR2000. Some programmers come up with a standard SAS idiom - do it twice and merge by region. What if there are more variables? Often the SAS programmer knows some SAS macro and can package the code as a macro so he doesn't care. It is at this point that we look deeper into PROC TRANSPOSE and look for a non-macro solution.

Problem

Now consider the question given in the Abstract. Given ten questions with response values 1,2, ..., 5 held in the corresponding variables Q1 - Q10. How can we obtain a

simple frequency? In this form, the question is often asked by statisticians coming to SAS from another statistical package. The answer is to transform the data to the form shown in the Abstract. How is the transformation made? The answer is to apply PROC TRANSPOSE twice.

Solution

```
DATA w ;
  INPUT id @4 (q1-q10) ($CHAR1.);
CARDS;
1 1154132411
2 1155232251
...
;

proc transpose data = w
  out = t ;
  var q1-q10 ;
run ;

proc sql ;
  create table t ( drop = _name_ ) as
  select * , input ( substr ( _name_ , 2 ),
2. ) as q
  from t
  order by q ;
run ;

proc transpose data = t out = t2 ;
  by q ;
  var col: ;
run ;

proc freq data = t2 ( rename = coll = ans )
;
  table q * ans /norow nocol nopercnt ;
run ;
```

The first PROC TRANSPOSE interchanges the rows and columns so that now COL1-COL13 represent the 13 respondents, and the question being answered is indicated by _NAME_.

We could sort by _NAME_ and then do PROC TRANSPOSE by _NAME_, but this causes Q10 to follow Q1 because Q10 comes before Q2 alphabetically. Instead we make a numeric variable for question using the number part of the name and sorted numerically using PROC SQL. It is important that _NAME_ was dropped because PROC TRANSPOSE would otherwise use this variable to construct the variable names. Without this field present it created just one variable COL1 representing the answer to the question indicated by Q.

What we have accomplished is normalization of the data. Now each response cell is located by two coordinates Q and COL1. After renaming COL1 to the more informative ANS, we just need a cross tabulation (Q*ANS) to get the desired frequency report.

Efficiency

We have used 5 data passes to obtain the counts. One could, in fact have accomplished obtaining the counts in the initial DATA step.

```
DATA rep ( keep = question a1 - a5 ) ;
  infile cards eof = eof ;
  INPUT id @4 (q1-q10) ($CHAR1.);
  array q (10) ;
  array count (10,5) _temporary_ ;
  array a ( 5 ) ;
  do i = 1 to dim ( q ) ;
    count ( i , q(i) ) + 1 ;
  end ;
return ;

eof:
  do i = 1 to dim ( q ) ;
    question = i ;
    do j = 1 to hbound( count , 2 ) ;
      a ( j ) = count ( i , j ) ;
      if a (j) = . then a (j) = 0 ;
    end ;
    output ;
  end ;
CARDS;
...
;
proc print data = rep ;
  var question a: ;
run ;
```

Clearly, this code is the most CPU efficient and should be used when the volume of data warrants it. But the TRANSPOSE solution is more SAS idiomatic and should be understood by any good SAS programmer.

Conclusion:

PROC TRANSPOSE is worth learning and, in appropriate circumstances does away with a lot of reasons for using cumbersome ARRAY code.

The author may be contacted by mail at

Ian Whitlock
Westat
1650 Research Boulevard
Rockville, MD 20850

or by e-mail

whitloi1@westat.com

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Printing One Variable Per Line

by Mike Rhoads

Sometimes when a data set has a large number of variables, or has many variables with long names or long character values, the output from traditional column-oriented reporting tools such as PROC PRINT can be difficult to use. Especially when only a few records need to be printed, it may be useful to produce a report that lists the name and value of each variable on a separate line. This can be done easily with DATA step code similar to the following:

```
DATA _NULL_;  
SET MyLib.MyData;  
FILE PRINT;  
PUT _PAGE_ ; /* Start a new page for each record */  
PUT (_ALL_) (= /);  
RUN;
```

The key to this technique is the second PUT statement. `_ALL_` is a special SAS variable list (like `_NUMERIC_`) that refers to all variables that are currently defined in the step. The second pair of parentheses encloses the format list that must accompany the variable list. The "=" serves as a format modifier that causes the output to be produced in named format: that is, print the variable name followed by an equal sign and then the variable value. The "/" causes SAS to start a new line for each variable.

This differs from the more commonly-seen `PUT _ALL_` in two ways. First, `PUT _ALL_` fits as many variables as it can onto one line before going to the next. This produces a more compact, but also more crowded, listing. Second, the `_ALL_` in `PUT _ALL_` is a PUT statement keyword that causes the values of all variables in the program data vector to be printed, including automatic variables such as `_N_` and `_ERROR_`. The sample program uses `_ALL_` not as a PUT statement keyword but as a special variable list. Consequently, the automatic variables are not printed.

Of course, you can include other DATA step statements such as WHERE or DROP to limit the records or variables to be printed, or even to create new variables.

Membership Application/Renewal

Date: _____
Name: _____
Company Name: _____
Mailing Address: _____
City, _____ State _____ Zip _____
Phone # _____ Fax # _____
E-Mail: _____
Preferred mode of contact (check one):
 Fax e-mail

SAS Version(s) _____
SAS Product(s): _____
Operating System(s) _____

Check one:
 Individual membership for 1 year is \$10.00
 Corporate sponsorship for 1 year is \$50.00

Please indicate a contact person for Corporate Sponsorships!

Check one:
 New membership Renewal membership

Mail to:

Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670

Calendar of Meetings and Events

This feature is meant to give users an idea of some of the activities of area users groups and special interest groups, as well as regional and international groups. If your group would like to be regularly included in this feature, please call Mike Rhoads or one of the DCSUG officers. There is a DCSUG directory with phone, fax, and E-mail contact information elsewhere in this newsletter.

December

5 **DCSUG** DC SAS Users Group, General Meeting
Time: 8:30 am - 12:00 noon
Site: U.S. International Trade Commission
 500 E Street, SW
Program: See front page announcement
Contacts: Mike Rhoads at (301) 251-4308
 RhoadsM1@Westat.com
 Peter Knapp at (202) 482-1359
 peter_knapp@ita.doc.gov

March 2001

6 **DCSUG** DC SAS Users Group, General Meeting
Time: 8:30 am - 12:00 noon
Site: TBA
Program: TBA

April 2001

22-25 **SUGI 26** SAS Users Group International
Site: Long Beach Convention Center
 Long Beach, California
Chair: Frank Fry
Further Info: www.sas.com/usergroups/sugi/sugi26/intro.html

June 2001

5 **DCSUG** DC SAS Users Group, General Meeting
Time: 8:30 am - 12:00 noon
Site: TBA
Program: TBA

September 2001

30-Oct 2 **NESUG '01** NorthEast SAS Users Group Annual Conference
Site: Baltimore Harborplace
 Renaissance Hotel
 Baltimore, Maryland
Chairs: Linda Atkinson and Sue Douglass
Further Info: <http://www.nesug.org>

Other Groups

CENSUG Census SAS Users Group
Contact: Andrea Potter at (301) 457-1687

MDSUG Maryland SAS Users Group
Contact: Mr. R.H. Miller, (410) 740-4229
 refa09a@prodigy.com

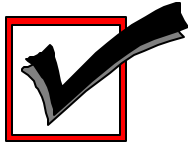
NCHSSUG National Center for Health Statistics SAS Users Group
Contacts: Arlene Siller at (301) 458-4498
 asiller@cdc.gov
 Linda Tompkins at (301) 458-4533

NIHSUG National Institutes of Health SAS Users Group
Contact: Ray Danner at (301) 496-6037

NOVASUG Northern Virginia SAS Users Group
Contact: Joe Mirabal at (703) 265-4620
 jmmirabal@aol.com

VASUG Virginia SAS Users Group (Richmond area)
Contact: Beth Wilson at (804) 967-1000
 beth.wilson@capitalone.com

Election of 2001 DCSUG Officers



Peter Knapp — Candidate for Chair

Peter Knapp interned at the Bureau of Labor Statistics (BLS) where he learned the joys of SAS on an MVS mainframe environment. After contracting with BLS for three years, he joined the International Trade Administration (ITA) at the Commerce Department. For ten years Mr. Knapp has helped administer international trade law at ITA. During this time he has guided SAS processing from a central mainframe shop to an end user PC based system.

Arlene Siller -- Candidate for Treasurer

Arlene Siller is a Computer Specialist with the National Center for Health Statistics and has used SAS for 22 years. Her responsibilities include programming and analysis using SAS/Base and SAS/Stat for National health surveys. She is the SAS Site Representative for her agency and co-chair of the in-house NCHS Users Group (NCHSSUG). She is very involved in providing support for NCHS SAS users, and enjoys this personal interaction part of her responsibilities the most. She has programmed using the TSO, Wylbur, VMS, DOS, Windows and UNIX operating systems.

Larry Altmayer -- Candidate for Secretary

Larry Altmayer has been with the U.S. Census Bureau for twenty two years and is a computer specialist. He has more than eleven years SAS programming experience, most recently with macros. He has used SAS and SUDAAN for modeling household survey nonresponse based on demographic person and household variables, and SAS for producing tables of employment percents and unemployment rates for the Current Population Survey. His programming experience has been mainly in the VMS operating system. He has a B.A. in Statistics from the Univ. of Buffalo, and Master of Applied Statistics from Ohio State University.

Mike Rhoads -- Candidate for SAS Liaison

Mike Rhoads has served on DCSUG's steering committee for the past several years and recently chaired its "Discover DC" committee for NESUG '99. He has also contributed to various SUGI and NESUG conferences as a paper presenter and session coordinator. 2001 marks the 22nd anniversary of his initiation into the wonderful world of SAS software. He is currently a Vice President in the Computer Systems and Applications group at Westat, where he still manages to sneak in an occasional DATA step or two when not overburdened by his other responsibilities.

DCSUG 2001 BALLOT

Place an "X" In the Box beside the candidate of your choice. You may write in the name of someone who has not been nominated if you wish.

DCSUG Officers

Chairperson

Description: Lead DCSUG, delegate assignments, chair group meetings, preside over nomination and election of officers.

Peter Knapp

Treasurer

Description: Manage the group finances: collect dues and fees, make disbursements, maintain record of income and disbursements. The Treasurer will also prepare a report of income and disbursements for distribution at the fourth quarter general meeting.

Arlene Siller

Secretary

Description: Record minutes of group meetings, maintain membership list, prepare meeting notices.

Larry Altmayer

SAS Liaison

Description: Represent and increase the influence of DCSUG to the SAS Institute

Mike Rhoads

DCSUG Dues

Dues are set annually by the steering committee and voted on by the member ship at the fourth quarter meeting. Dues will be payable by the first quarter general meetings. Dues will be used to finance mailings, telephone charges, newsletter and other expenses as approved by the group of officers.

Keep proposed (current) rate (\$10.00 per year individual, \$50.00 per year corporate)
 Increase Decrease

Please mail ballot to:

Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670

SAS® Software Training Seminars in Washington, DC

Presented by Sierra Information Services, Inc.

Location:

The George Washington Univ. K Street Center for Professional Education

2020 K Street NW, Washington, DC (Farragut West Metro Stop on the Blue & Orange Lines)

- **Summarizing and Reporting Data Using the SAS® System** *Wed., November 29th (9am-4:30 pm)*
This one-day seminar shows you **how to implement core data summarization and reporting tools** in the SAS System. **Completely revised and updated with the latest enhancements in Version 8**, the seminar **unlocks the mysteries of PROC MEANS**, shows you **why PROC REPORT is better** than doing it yourself with the DATA _NULL_ facility, how to use PROC TABULATE, and the role of PROC FORMAT in both data summarization and effective presentation of the values in a SAS data set.
- **SAS System Programming Efficiencies: Tips & Techniques** *Fri., December 1st (9am-4:30 pm)*
Learn the tools to **make your SAS programs run faster and require fewer machine resources to execute**, how to **reduce the size of your SAS data sets**, and to **speed retrieval** of observations for large SAS files. This seminar is packed with dozens of **actual "before and after" examples** demonstrating often little known SAS efficiency techniques and BASE SAS procedures that often **reduce the need for tedious Data Step coding**. This seminar, long popular with SAS users around the world, has **been updated with the latest efficiency tools available in Version 8** of the SAS System.

Detailed Seminar Outlines at www.Sierrainformation.com

- **Seminar Author and Presenter:** These seminars are written and presented by Andrew Karp, President of Sierra Information Services, Inc. An 18-year SAS Software user, Andrew has presented these and other seminars in conjunction with NESUG and other regional SAS user group conferences throughout the USA, and to SAS users in Australia, New Zealand, the United Kingdom and Belgium. His firm is a **Quality Partner™ of SAS Institute, Inc.**

Tuition: \$269 per seminar (includes full set of course notes, continental breakfast and afternoon refreshments.) *Group discounts available for three or more persons from the same organization attending the same seminar on the same day. Please call for details.* These seminars are not academic offerings of The George Washington University.

Registration and Other Details: Check payable to Sierra Information Services, Inc., or by purchase order, VISA, MasterCard or American Express. Please mail payments to: Sierra Information Services, Inc. 19229 Sonoma Highway PMB 264 Sonoma, CA 95476. **Phone: 707 996-7380** Fax: 707 996 4996. Federal Tax ID: 94-3199501. Attendance is limited to those for whom payment (or purchase order) is received in advance of the event. Sierra Information Services, Inc. reserves the right to cancel one or both of these seminars, and if we do cancel, our liability is limited to refund of fees paid. **We are not liable for special or consequential damages arising from workshop cancellation.** SAS and Quality Partner are registered trademarks of SAS Institute, Inc. in the USA and other countries. ® indicates USA registration.

SAS® Programmer

The National Center for Lead-Safe Housing has an immediate opening for a SAS® programmer in Columbia, Maryland. Columbia is a modern suburban community with good schools, parks and recreational facilities, conveniently located between Baltimore and Washington DC.

The National Center for Lead-Safe Housing is a nonprofit organization established to conduct research on evaluating and controlling lead hazards in housing and provide technical assistance to local, state and federal programs dealing with lead issues. Our research involves environmental, housing and health data. The SAS® programmer will work under the direction of a statistician or other senior scientist.

Experience in data collection, management and analysis required. Experience in statistical analysis preferred. We offer a challenging environment, flexible work hours, competitive salary and excellent benefits.

Send resume: Sherry Dixon, 10227 Wincopin Circle #205, Columbia, MD 21044;
Tel (410) 992-0712; E-mail: sdixon@enterprisefoundation.org EOE.

2001 Meetings

Plan ahead and mark your calendars now. The DCSUG will tentatively meet on the following dates in 2001: March 6, June 5, September 11, December 4. Meeting times and locations to be announced. If at any time you have a question about an upcoming meeting or other DCSUG information, call one of the members of the Steering Committee.

You're Invited

To visit the DCSUG home page

The URL for the DCSUG home page on the Web:
<http://www.ita.doc.gov/industry/otea/dcsug>

Remember to Join DCSUG!!!



Don't forget to renew your DCSUG membership for 2001. Dues are used to defray the costs of producing and mailing the newsletter and provide refreshments at our meetings. You'll make sure that you keep receiving the newsletter and keep DCSUG going. If you have not joined DCSUG, now is a great time to do so. Joining DCSUG is as easy as completing the membership form included in this newsletter. Individual memberships are only \$10; corporate memberships are \$50

Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670